DETAILED ACTION

1. This communication is in response to the Applicant's Response mailed on November 30, 2007. Claims 1, 21, 27 and 45 were amended. Claims 13, 37 and 46 were canceled. Claims 1-12, 14-36 and 38-45 of the application are pending. This office action is made non-final.

Claim Objections

2. The following is a quotation of 37 C.F.R § 1.75 (d)(1):

> The claim or claims must conform to the invention as set forth in the remainder of the specification and terms and phrases in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

3. Claims 1, 6, 15, 21, 22, 23, 2, 39 and 45 are objected to because of the following informalities:

In Claim 1, Line 19, "wherein said reference feature is a descendent" appears to be incorrect and it appears that it should be "wherein said new reference feature is a descendent".

In Claim 6, Line 4, "such that said new feature; exhibits" appears to be incorrect and it appears that it should be "such that said new feature exhibits".

In Claim 15, Line 8, "wherein said reference feature is a descendent" appears to be incorrect and it appears that it should be "wherein said new reference feature is a descendent".

In Claim 21, Line 22, "wherein said reference feature is a descendent" appears to be incorrect and it appears that it should be "wherein said new reference feature is a descendent".

In Claim 22, Line 2, "a parent coordinate system" appears to be incorrect and it appears that it should be "the parent coordinate system".

In Claim 23, Line 3, "a parent coordinate system" appears to be incorrect and it appears that it should be "the parent coordinate system".

In Claim 28, Line 2, "converting said primitive element to a feature" appears to be incorrect and it appears that it should be "converting said primitive element to said new feature".

In Claim 39, Line 6, "wherein said reference feature is a descendent" appears to be incorrect and it appears that it should be "wherein said new reference feature is a descendent".

In Claim 45, Line 6, "wherein said reference feature is a descendent" appears to be incorrect and it appears that it should be "wherein said new reference feature is a descendent".

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-12, 14-36 and 38-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This is because the use of numerous terms that are vague and indefinite making the claims vague and indefinite.

5.1 Claim 1, Line states "establishing a base feature of the vertical model". What is a feature? The Examiner checked the patents and found 188 different uses of the term "feature". It could be a point, a line, a plane, an element, an object, a component, a memory, a register, an address, a part etc. Unless the applicant defines what the intended meaning of "feature", the Examiner can use any one of the possible meanings to interpret the claim. While the Examiner may use the specification to interpret the language of the claim, the Examiner is required not to read the limitations from the specification into the claims, but give wide interpretation of claim language. Therefore, the examiner can interpret the feature to mean any one of the 188 terms to reject the claim.

Claim 1, Lines 6-7 state, "identifying each dependency for each of a plurality of modeling features from said parent modeling element". What is the difference between "modeling feature" and "modeling element"? Is an element same as a feature or not? If they are not same, the Applicant should include a definition of the element and feature in the claim. As otherwise the examiner will interpret them to be the same.

Claim 1, Lines 6-7 state, "identifying each dependency for each of a plurality of modeling features from said parent modeling element". What is a dependency? How is

dependency defined? Does this mean the parent modeling element is independent and the modeling features are dependent on the parent modeling element? The term dependency is vague and indefinite unless the Applicant defines the term in the claim. How is the modeling feature dependent on the parent modeling element? If the applicant does not define the term dependency, the examiner will give wide interpretation of the term to include any sort of relationship between two elements or features to reject the claims.

Claim 1, Lines 11-12 state, "each said modeling feature exhibits a direct associative relationship with a reference feature". What is a reference feature and how is it defined? While the examiner may use the specification to interpret the claim language, the examiner is required to give wide interpretation of the claim language to reject the claims. The examiner checked the patents and found more than 100 uses of the term reference features. In a shaft and bush combination, the bush is treated as reference to the shaft. In the cylinder and piston combination, the cylinder is treated as a reference to the piston. In a rack and pinion arrangement, the pinion is used as reference to the rack. In the computer memory, an address is treaded as reference. In a processor, a CPU is tread as reference to a register and a memory location. The examiner is at a loss to interpret the meaning of the term "reference feature".

Claim 1, Lines 14-15 state, "determining if said modeling feature is dependent on an existing datum for placement". The examiner interprets the term "datum" to mean some number since datum is the singular form of data, which means numbers. Since the data will be used for placement of a modeling feature in a CAD diagram or in a CAD database, "determining if said modeling feature is dependent on an existing datum for placement" did not make sense. Therefore, the examiner checked the specification to determine the use of the term datum. In the

specification the terms datum, datum plane, datum-CSYS and datum line are used. Often, datum is used to mean data (the examiner interpreted so) and other times, it is used in the place of datum plane, which is a coordinate plane. How should the datum be interpreted in the claims? Is it simply some data or is it a datum plane?

Claim 1, Lines 18-19 state, "configuring a new reference feature for placement of said modeling feature wherein said reference feature is a descendent of said parent coordinate system". What is a new reference feature and how is it related to the reference feature? Is the new reference feature a modeling feature or a modeling element or is it one of the more than 100 ways a reference is described in the literature? What is meant by "reference feature is a descendent of said parent coordinate system"? How is the reference feature related to a coordinate system?

Claim 1, Lines 20-21 state, "establishing an associative relationship between said modeling feature and said new reference feature". What is meant by an associate relationship and how is established? Is this the relationship between two mating elements such as shaft and bush, cylinder and piston, gear and pinion, CPU and memory? Does this mean that the modeling feature and the so called reference feature are related in operation someway? While the specification may give some explanations or descriptions for some of the terms, unless the relationship is clearly defined in the claim, the Examiner will use broad interpretation of the term to reject the claim.

Claim 1, Line 21 states, "deleting said dependency". Which dependency is being deleted? Is this the dependency between the modeling features and parent modeling element

mentioned on Lines 6-7? Or is it the dependency between the modeling feature and the existing datum mentioned in Lines 14-15?

Claim 1, Lines 18-19 state, "configuring a new reference feature for placement of said modeling feature" and Lines 28-29 state, "each said modeling feature for positioning". What is the difference between placement and positioning of the modeling feature? Where is it described in the specification?

Claim 1, Lines 24-25 state, "establishing an associative relationship with **at least one of** said parent coordinate system and a descendent reference feature". An associative relationship has to be established between two items. How do you establish a relationship with parent coordinate system? How do you establish a relationship with a descendant reference feature? Should this be an associative relationship between said parent coordinate system and a descendent reference feature? What is a descendant reference feature and how is related to the reference feature and the new reference feature? How do you establish a descendant reference feature?

Claim 1, Line 26 states, "deleting said dependency". Which dependency is being deleted? Is this the dependency between the modeling features and parent modeling element mentioned on Lines 6-7? Or is it the dependency between the modeling feature and the existing datum mentioned in Lines 14-15? If you delete the dependency once on Line 21 then why do delete the dependency again on Line 26?

Claim 1, Lines 28-29 state, "each said modeling feature exhibits a direct associative relationship with another reference feature". What is another reference feature and how is it related to reference feature, new reference feature and descendent reference feature? Where are

these different reference features shown in the Figures, so the Examiner can properly interpret all these reference features?

The claim involves three different associative relationships - associative relationship between said modeling feature and said new reference feature (Lines 20-21), associative relationship with at least one of said parent coordinate system and a descendent reference feature (Lines 24-25) and modeling feature having a direct associative relationship with another reference feature (Lines 28-29). Are the associative relationships based on which reference feature is used? Are there multiple associative relationships, one defined for each reference feature?

5.2 Claim 2, Lines 5-6 state, "a first datum exhibiting an associative relationship with at least one of said parent coordinate system and said child coordinate system". If datum is the singular form of data, then datum means some number or value. What is meant by datum exhibiting an associative relationship with a coordinate system?

Claim 2, Lines 7-8 state, "a second datum exhibiting an associative relationship with said first datum". If datum is a number or value, what is meant by an associative relationship between two numbers or values? What is the purpose of this associative relationship?

5.3 Claim 3, Lines 6-7 state, "a third datum exhibiting an associative relationship with at least one of said parent coordinate system and said child coordinate system". If datum is the singular form of data, then datum means some number or value. What is meant by datum exhibiting an associative relationship with a coordinate system?

Claim 3, Lines 8-9 state, "a fourth datum exhibiting an associative relationship with said third datum". If datum is a number or value, what is meant by an associative relationship between two numbers or values? What is the purpose of this associative relationship?

5.4 Claim 4 states, "identifying a primitive element in said vertically structured CAD/CAM model". What is a primitive element and how is it related to parent modeling element mentioned in claim 1, Line 5?

5.5 claim 5 states, "converting said primitive element to a feature". What is meant by converting an element to a feature? How do you convert an element to a feature? An element can be an object, a part, a component, a CPU, a memory or a register. A feature can also be an object, a part, a component, a CPU, a memory or a register. So what does this conversion do? How do you do this conversion? What is the purpose of this conversion?

What is a feature? It is an undefined term and the Examiner is at liberty to interpret it in 188 ways. Is this a modeling feature, a reference feature, a new reference feature, a descendent reference feature or another reference feature, all mentioned in claim 1?

5.6 Claim 6, Lines 1-2 state, "said converting includes establishing a new feature corresponding to said primitive element". How is this new feature different from the feature? Is this new feature a modeling feature, a reference feature, a new reference feature, a descendent reference feature or another reference feature, all mentioned in claim 1?

Claim 6, Lines 2-4 state, "said new feature exhibits an associative relationship with at least one of said parent coordinate system and a child thereof for placement and positioning". Lines 4-6 state, "said new feature; exhibits an associative relationship with at least one of said parent coordinate system and a child thereof for positioning". Therefore, it appears that two different associative relationships are established, one for placement and positioning and another for positioning. What is the difference between placement and positioning and where is it described in the specification? How are these associative relationships established differently?

5.7 Claim 7 states, "said associative relationship is a parent/child relationship". Claim 6, depends on claim 5, 4 and 1. So there are several associative relationships involved. Which associative relationship is said associative relationship? Which associative relationship is a parent/child relationship?

5.8 Claim 9, Line 3 states, "creating a first datum plane positioned and oriented relative to a reference" and Lines 4-7 refer to "said reference". What is a reference and how is it different from a reference feature mentioned on Line 12 of claim 1? Is this reference same as a modeling feature or a primitive element or parent modeling element?

5.9 Claim 12 states, "at least one of said associative relationship and said another associative relationship is a parent/child relationship". There is no mention of another associative relationship in claim 11 or any preceding claims. What is another associative relationship? There are several associative relationships mentioned. Which is said associative relationship?

5.10 Claim 14 states, "said associative relationship is a parent/child relationship". Claim 14, depends on claim 1. Claim 1 involves three different associative relationships - associative relationship between said modeling feature and said new reference feature (Lines 20-21), associative relationship with at least one of said parent coordinate system and a descendent reference feature (Lines 24-25) and modeling feature having a direct associative relationship with another reference feature (Lines 28-29). Which associative relationship is said associative relationship? Which associative relationship is a parent/child relationship?

5.11 Claim 15 Lines 1-2 state, "said restructuring each dependency for each said feature for positioning". Is this feature a modeling feature, a reference feature, a new reference feature, a descendent reference feature or another reference feature, all mentioned in claim 1?

Claim 15, Lines 3-6 refer to "existing datum". Claims 9 and 10 refer to "datum plane". What is the difference between the two? When do you use datum and when do you use datum plane? Is datum data or value or number? Is datum plane a two dimensional plane and is it different from datum?

Claim 15, Lines 7-9 state, "configuring a new reference feature for positioning of said modeling feature wherein said reference feature is a descendent of said parent coordinate system". Calim1, Lines 18-20 state, "configuring a new reference feature for placement of said modeling feature wherein said reference feature is a descendent of said parent coordinate system". What is the difference between placement and positioning? Does this mean two new reference features are configured, one for placement and one for positioning?

Claim 15, Lines 9-10 state, "establishing an associative relationship between said feature and said new reference feature, then deleting said dependency". Is this feature a modeling feature, a reference feature, a new reference feature, a descendent reference feature or another reference feature, all mentioned in claim 1? Does this mean that an associative relationship is established between said modeling feature and said new reference feature once for placement and then an associative relationship is established between said feature (modeling feature) and said new reference feature once for positioning? How many associative relationships are established between modeling feature and new reference feature?

Claim 15, Line 10 states, "then deleting said dependency". The said dependency (which said dependency is it? There are two dependencies mentioned in claim 1) is deleted many times. Why?

Claim 15, Lines 13-14 state, "establishing an associative relationship with **at least one of** said parent coordinate system and a descendent reference feature". An associative relationship has to be established between two items. How do you establish a relationship with parent coordinate system? How do you establish a relationship with a descendant reference feature? Should this be an associative relationship between said parent coordinate system and a descendent reference feature? What is a descendant reference feature and how is related to the reference feature and the new reference feature? How do you establish a descendant reference feature?

Claim 15, Lines 14-15 state, "deleting said dependency". Which dependency is being deleted? Is this the dependency between the modeling features and parent modeling element mentioned on Lines 6-7 of claim 1? Or is it the dependency between the modeling feature and

the existing datum mentioned in Lines 14-15 of claim 1? You delete the dependency once on Line 21 of claim 1; then you delete the dependency again on Line 26 of claim1; then you delete the dependency again on Line 10 of claim15; then you delete the dependency again on Lines 14-15 of claim 15. Why do you delete the dependency four times?

5.12 Claim 16 states, "said associative relationship is a parent/child relationship". Since there are numerous associative relationships mentioned, which is the said associative relationship?

5.13 Claims in the set 1-12 and 14-20 that were not specifically rejected are rejected because of their dependence on rejected claims.

5.13 Claims 21-36 and 38-44 are system claims having the same limitations as claims 1-12 and 14-20. They use similar vague and indefinite terms as claims 1-12 and 14-20. Claim 45 is a computer readable medium claim reciting the same limitations as claim 1. Therefore, these are rejected based on the same reasoning as claims 1-12 and 14-20.

5.14 The claims have been written with numerous vague and indefinite terms, making it difficult to understand what the applicants are claiming. The Examiner carefully read the specification twice and tried to interpret the claims giving broad interpretations to the terms and found the claims very confusing. The claims have been written without clear knowledge and understanding of the description in the specification. The specification is also very confusing. Any amount of argument like 40 or 60 page argument will not advance the application towards

allowance. The applicants are advised not to pursue such futile course. In stead, the applicants should carefully read the specification and prepare answers to the issues raised in Paragraphs 5.1 to 5.13 above. Then the claims should all be rewritten so all the vague and indefinite terms are eliminated in the new set of claims. Such an approach will be productive use of the Applicants', attorney's and Examiner's valuable time. That approach will also advance the application towards allowance.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-12, 14-36 and 38-45 are rejected under 35 U.S.C. 101 because the claimed inventions are directed to non-statutory subject matter.

7.1 Claim 1 states in the preamble, "A method for converting a vertically structured CAD/CAM model to a horizontally structured CAD/CAM model". The method comprises:

identifying and establishing a base feature of the vertical model;

establishing a parent coordinate system for the horizontal model;

identifying a parent modeling element of the vertical model; and

identifying each dependency for each of a plurality of modeling features …;

... restructuring each dependency for each said modeling feature ..., said restructuring including;

determining if said modeling feature is dependent on an existing datum for placement;

performing at least one of:

configuring a new reference feature for placement of said modeling feature ...,

reconfiguring said existing datum as a descendant of said parent coordinate system...; and

restructuring each dependency for each said modeling feature for positioning ....

The method does some computations in the computer and rearranges the data and their positions. The method does not produce any useful, concrete and tangible results that can be used for design improvement or for manufacturing a component or for any other practical purpose Therefore, the method is not patentable under 35 USC 101. The Examiner carefully read the specification and could not find any description of how the method can be used for any design improvement or for any other practical purpose. The Applicants are directed to show where in the specification any practical application of the method is described and where any useful, concrete and tangible results are produced by the method.

Claims 2-12 and 14-20 depend on claim 1, but do not produce any useful, tangible and concrete result and therefore lack practical application. Therefore, they cannot be patented under 35 USC 101.

7.2 Claims 21-36 and 37-45 are system and storage medium claims having the same limitations as claims 1-12 and 14-20. They also do not include any practical application or useful, concrete and tangible results. Therefore, they cannot be patented under 35 USC 101.

Response to Arguments

8. Applicants' arguments filed on November 30, 2007 have been fully considered. Claim rejections under 35 USC 112 Second paragraph are included in this office action. Claim rejections under 35 USC 101 are maintained , since the applicants' response to previous 101 rejections are nor persuasive.

8.1 As per the applicant's argument that "the applicants have removed the conditional language, so the independent claims provide useful, tangible and concrete results", the Examiner respectfully disagrees. As described in Paragraph 7.1 above, simple computation of some values and rearranging the data in the database does not produce any useful, concrete and tangible results. The Examiner could not find any description any practical application of the method in the specification. Therefore, the Examiner maintains the 101 rejections.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 571-272-3717. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez, can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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/Kandasamy Thangavelu/
Examiner, Art Unit 2123
February 27, 2008